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Ontario Sheep Research and Services Committee

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EXECUTIVE SUMMARY

The sheep industry continues to strengthen in terms of productivity. Numbers are currently static, but if slaughter prices remain strong, it is expected that there will continue to be an increasing number of larger flocks. The Ontario Lamb Improvement Breeding Strategy (OLIBS) has influenced the industry by escalating the awareness of the need for improved health and genetics. Ewe lamb replacement values have risen above slaughter values for the first time. Other initiatives such as on-farm QA and HACCP programs, Forward Contracting, integrated predator management and provincial flock health programs will all bring the industry forward. However, the industry still requires much help, particularly extension help with nutrition, genetic improvement, disease control, product (meat and milk)

quality. This document outlines those needs in detail.

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INTRODUCTION

The OLIBS study continues to occupy most of the OMAFRA sheep research effort. The ARIO accepted the OMAFRA - University of Guelph Research Agreement report presented in October 1997 and voted to continue funding of this program. For the first time, the Ontario Sheep Marketing Agency established a research fund and approved monies for several research projects, notably in aid of a project surveying copper levels in livers of sheep and lambs from provincial abattoirs in Ontario, a survey of economic effects of flock health programs, development of a sheep dairy module for a computer software program and a live animal test for Scrapie. Other important initiatives undertaken by OSMA have been forward contracting and involvement with the development of an on-farm Quality Assurance program.

The OLIBS program is progressing well. The flock health program has been developed for Ontario and administrative details are being worked out now. Level One will promote best health management practices, monitoring and goal setting for productivity and will blend with the Quality Assurance program being developed by OSMA. Level Two at this point will start with Maedi Visna and will hopefully soon include Johnes's disease and scrapie (depending on the federal government and the Canadian Sheep Federation).

The reproductive technologies group is winding down the production of "OLIBS" sheep. Approximately 200 breeding ewes are now at one Replicator producer and the balance (40) at the New Liskeard Research Station. It is planned that the New Liskeard flock will be depopulated and repopulated with high health OLIBS animals as well as an out-of-season Dorset flock (high health as well). To minimize the effect on the nutritional work being done at NL, this will occur over two years. The purebred group is active with developing sire referencing schemes to improve genetics within the breeds. The Rideau group has opened the program out to the breed association, an example of how the OLIBS program will act as a model for the industry.

The OLIBS education modules have finished. Overall the program was a success, however the final few were not well organized. The industry is currently deciding in what format to repeat the effort. Other provinces are very interested in using the OLIBS program as a model for their CE efforts.

Although this has been a very positive year for research, there are still large problems for the sheep industry. OMAFRA has cut back its support of the industry by a full FTE by eliminating the 0.1 FTE of the regional extension offices. This comes at a time when the industry is in expansion, when many small flock holders are increasing in size and experiencing the problems associated with this increase. Given the number of producers shipping lambs is well over 5,000, extension effort should be increased to deal with these many farm units.

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COMMITTEE ACTIVITIES

The committee met once on May 25, 1998 at the Ontario Veterinary College. Overall, attendance was excellent. However, the member representing the Canadian Sheep Federation could not be present for the second year in a row, and again, no member representing the meat processors came. Again this inhibited discussion of certain areas.

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STATE OF THE ONTARIO SHEEP INDUSTRY

The estimated total inventory of sheep and lambs in Canada at July 1, 1998, was 838,000, up 1.4% from 1997 (826,500) but down 1.1% from 1996 (846,700). (source: www.statcan.ca).

Table 1 - Ewe and Lamb Numbers:

Ontario Sheep & Lamb Inventory (OMAFRA) ('000 Head)						
Animal Class	Jan 1st		Jul 1st		% of 97	
	1997	1998	1997	1998	Jan 1st	Jul 1st
Rams, 1 Year +	6.8	6.8	6.8	7.0	100	102.9
Ewes	131.4	122.0	122.0	124.0	92.8	101.6
Lambs, replacement	22.2	22.0	25.5	28.0	99.1	109.8
Lambs, market	20	19.5	72.1	73.0	97.5	101.3
Total	180.4	170.3	226.4	232.0	94.4	102.5

Total sheep numbers appear to have been down in January of 1998 but are up again in July over 1997 here in Ontario. The trend in sheep population in Ontario sheep is shown in figure 1.

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Table 2. July 1st 1997 Census data for Ontario by region

1997 Census Data	Rams > 1 year	Sheep > 1 year	Lambs < 1 year	Total sheep & lambs
Ontario	6,800	122,000	97,600	226,400
Southern Region -	1,282	20,500	19,080	40,862
Western Region -	2,795	57,825	38,780	99,400
Central Region -	1,200	18,850	13,750	33,800
Eastern Region -	1,235	20,050	21,500	42,785
Northern Region -	288	4,775	7,790	9,553

1997 numbers are down over 1996, particularly in the Western Region. However, more sheep were to be found in the Southern and Eastern Region than previously. The Western Region still dominates in terms of overall population with the counties of Bruce, Dufferin, Grey, Huron, Perth, Simcoe & Wellington contributing the most numbers.

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Table 3. Lamb Slaughter Numbers and Market Prices

Type of Animal	Ontario			Quebec		
	#Sold	Avg\$/cwt	Range	#Sold	Avg\$/cwt	Range
Lamb A&B - 79 lbs	50,702	166.91	94.83-287.11	10,576	138.09	90.00-194.00
Lamb A&B - 80-94 lbs	19,585	140.06	89.59-210.93	4,211	136.63	96.00-190.00
Light Lambs	10,315	192.83	67.50-274.88	17,010	178.20	100.00-250.00
Sheep	24,965	63.29	37.99-96.06	7,796	58.27	29.00-88.00

To date, in the first 6 months of 1998, volumes of lambs to slaughter in Ontario have continued to increase from 15 to 46% over a year ago, depending on the weight category. Prices are lower, from \$11 to \$20 cwt over the last year. However, demand remains strong in the face of increased supply so it is likely that prices will not decline any more. Figure 2 shows the trend of lamb and sheep prices over the last decade. Quebec has lost 7,000 to 10,000 ewes over the last two years due to the scrapie eradication program. This will impact the slaughter numbers in that province, likely for years to come.

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IMPORTS & EXPORTS

Imports - Dressed Meats

Total lamb and mutton imports for 1997 were 10,659 metric tonnes, up 14% from 1996 (9,338). New Zealand supplies most of the meat imports (7,233) with Australia (3,147) and the U.S. (279) as the other major suppliers. Lamb imports represent the biggest increase with mutton imports still on the decrease.

Exports - Dressed Meats

Canada continues to export very little lamb and mutton. However, exports are up by 68 % compared to the first six months of 1996. The majority of our export trade continues to go to the United States, and this is up 12 % over last year. A good portion of our exported lamb in the first 6 months of 1997 went to Mexico. This is a new export market for Canadian lamb and accounts for 48 % of "lamb, bone-in cuts" exported so far this year.

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Live Imports from United States

Imports of slaughter sheep and lambs from United States are down considerably in 1997 (10,206 head vs 27,217 in 1996).

Live Exports to United States

Exports of slaughter sheep and lambs, to the United States are up in 1997 over 1996, (46,183 vs 44,471). With the low Canadian dollar this increase in exports may continue in 1998.

Animal Surveillance

In 1997, 189,587 sheep and goats were inspected at abattoirs (not divided statistically) and 148,615 sheep and goats were inspected at the sales yard. 10,578 specimens were submitted to the Animal Health Laboratory with 591 submissions and 293 necropsy cases.

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US Sheep & Lamb

1997 - 1998 numbers reveal the continuing trend of decreasing sheep numbers nationally. Total inventory for January 1, 1997 was 7,937,000 and for January 1st, 1998 was 7,616,000. Ninety one percent of the sheep farms have fewer than 100 sheep but 55% of the sheep are located in farms greater than 500 ewes. These percentages are holding fairly steady. Slaughter numbers are also in decline. Slaughter prices for ewes are \$29.90 for cwt (1996). Lamb slaughter prices have been stronger (\$82.20 in 1996 cwt vs. \$59.50 in 1992) and for this reason, total slaughter cash receipts have risen over the past 5 yrs to \$601 million (1996).

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Purebred Registrations

Total sheep registrations for 1997 are 10,846. This number is down from previous years. Quebec registered the largest number of sheep (1,984) followed by Ontario (1,634) and Alberta (823). Purebred export transfers were holding steady at 229 compared with 225 in 1995. However, this is still a long way from the record numbers in 1991 when 824 purebred export transfers were applied for.

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Wool

The volatile economic situation in Asia has kept wool prices low. 1997 saw a 12% increase in wool volume nationally (~2.5 million lbs.), although Ontario is unchanged at 500,000 lb produced. Prices average between \$0.40 to \$0.50 per lb. Prices may decline internationally to \$0.20 for the type of wool Canada sells. Right now there is little market for Canadian wool due to many factors other than the collapse of Asian markets. Canadian wool has too much vegetable matter (5% vs 0.1% as the acceptable limit). In addition, polypropylene continues to be a problem. Unfortunately, many producers are not paid for premium wool but receive the same price as poor quality wool.

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Ontario Sheep Flock Improvement Program

Enrolment continues to decline with 130 producers entering 10,871 lambs in 1997. This represents 5,481 ewes, and 5,899 lambings and 24 breeds (including cross-breeds). Average # born/lambing was unchanged at 1.8 and average # weaned/lambing was up to 1.6. Most of the producers no longer enrolled are smaller purebred flocks. Some of the lost producers may be using Ovissey, the privatized national program which, for the last year, has been accepting producers. It is managed by the Canadian Sheep Federation. It is not known how many sheep producers in Ontario are enrolled on this program but 200 are enrolled across the country. There are still serious concerns regarding its financial stability as operating costs are very high.

Estimated progeny differences (EPD's) have now been offered for one full season. Several talks have been given to producers regarding their use. Values are being produced for: birth weight direct, birth weight maternal, 50 day gain direct, 50 day gain maternal, 100 day gain, number born per lambing and number weaned per lambing. The program was also modified to allow for electronic transfer of data from EweByte to SFIP and back. As a pilot project, a real time ultrasound service for estimating back fat and loin eye is being offered to SFIP producers. 45 producers have expressed interest in this project which will give additional carcass genetic estimates. SFIP has given Ovissey access to its data base to help with the calculation of national EPD's. SFIP is pursuing the genetic evaluation of out of season breeding in conjunction with a project at the University of Guelph.

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Extension Support

There has been a significant loss in the OMAFRA extension support of the sheep industry. Despite a highly prioritized request that no further cuts to support occur (and that additional support be made available), one FTE of support has been lost this year. 10 livestock advisors across Ontario had 0.1 FTE devoted to sheep and goats and these positions have been eliminated. An example of the importance of these people is evident in the very successful one day symposium for goat producers held in March at Guelph. It is very unlikely this would have occurred without the hard work of two of those offices (Simcoe office and Orangeville office).

Extension personnel with sheep FTE (Drs. Martin and Blackwell, Ms. O'Brien, Ms. Kennedy as well as Dr. Tremblay who doesn't have specific sheep FTE) continue to work very closely with the sheep industry. Examples of their work have been outbreak investigation, copper toxicity and predator management. Although a nutritionist has been identified to work with the sheep industry, this represents too small a commitment to sheep nutrition, particularly when considering the lack of experience of the

producers who now are trying to manage larger flocks.

The Veterinary Laboratory Services division has joined the University of Guelph and been renamed the Animal Health Laboratory. The largest effect has been on the discontinuation of a special submission price for herd outbreaks. Now every submission costs the producer. E.g. if the producer's flock is experiencing an abortion storm, often several submissions are required to obtain a diagnosis. Previously, only one submission fee was charged for these cases. Now, each abortion would be submitted as a different case. Very few producers can absorb this kind of charge. A special fund should be made available for situations such as these.

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EMERGING NEEDS / ISSUES

The health portion of the OLIBS program has, as one of its objectives, the creation of a flock health management program. Whereas the Level One program focuses on best health management practices, monitoring of productivity and on-farm quality assurance, the Level Two program will involve disease status certification. As for the Swine program, this will be a provincial program and as such needs the involvement of a government agency to oversee the administration. This will be a cost-recovery program and therefore should not be a burden to the tax payer but offers the benefit of improving the health and therefore the productivity of the Ontario sheep flock.

OMAFRA extension support needs to be increased. The sheep industry will not be sufficiently serviced by private consultants as it is too small. Another FTE of sheep extension should be available to producers in the western & central section of S. Ontario, preferably based out of the Wellington office in Fergus.

SFIP must continue to be supported because of the instability of the national sheep ROP program, Ovissey. If the latter program fails, it is critical that SFIP still exist for Ontario producers. In the event of Ovissey's discontinuation, OMAFRA may wish to re-examine SFIP's potential national role. It is a resource that cannot be lost to the Canadian sheep industry.

Changes to the fee structure for registering feeds in Canada will have a negative impact on feeds formulated for sheep. Because sheep feeds are low volume, feed companies may choose to discontinue.

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REPORT OF ACTION TAKEN ON PREVIOUS YEAR'S RECOMMENDATIONS

AGRICULTURAL RESEARCH INSTITUTE OF ONTARIO'S (ARIO) RESPONSE

THE 1997 ONTARIO ANIMAL RESEARCH & SERVICES COMMITTEE RECOMMENDATIONS:

RECOMMENDATION #1: REPRODUCTION**PRIORITY****1-C****TO: ARIO****DETAILED OBJECTIVES:**

1. Develop and evaluate improvements in the practicality of embryo transfer technologies, particularly in super-ovulation, embryo freezing, transfer, sexing, twinning, cloning in juvenile and mature ewes. This also includes evaluating methods for relaxing the cervix to improve success of artificial insemination and embryo transfer.
2. Develop a practical technique to recover unfertilized eggs (oocytes) from ovaries of immature lambs for in vitro fertilization.
3. Develop and evaluate a technique for in vitro gamete fertilization and transfer (in contrast to embryo transfer).
4. Develop techniques to improve the survival of frozen ram semen and extend the survival of fresh ram semen.

RESPONSE:**ARIO**

ARIO acknowledges the potential of the sheep industry to earn a greater portion of the domestic lamb market through the continuous supply of quality lamb. The OLIBS study was designed to develop an infrastructure for the production of consistently high quality lamb throughout the year. This is to be accomplished through research and service programs in genetics, health, reproduction, economics and product evaluation. OLIBS has been underway for two years and has made significant progress. The 1997-2001 approved sheep research program continues to support the objectives of the OLIBS. Through this program the OASCC priorities of reproduction, health, nutrition, management and economics, genetics and meat production & evaluation are addressed.

The University of Guelph: Recommendation #1 in the sheep program is being addressed by two projects which are:

Project #	Leader	Title
13320	Buckrell, B	Improvements in the application of embryo and semen technologies to improve sheep production.
13340	King, Wa.	Towards the in vitro production of viable sheep embryos of known sex.

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RECOMMENDATION #2: HEALTH**PRIORITY****1-C****TO ARIO, AAFC****DETAILED OBJECTIVES:**

1. Develop an Ontario Sheep Flock Health Improvement Program that will encourage proper flock health management and drug use and will allow for accreditation of disease status of sheep flocks.
2. Use data collected from on-farm management programs to evaluate health and productivity and impact of disease and its eradication on selected farms.
3. Efficacy of treatment modalities in curing copper exposed sheep needs to be evaluated as well as addressing the risk of various feeds and feed preparation techniques.
4. Develop and/or assess diagnostic tests for detection of scrapie either in postmortem or live animals.

RESPONSE:

ARIO: See response to #1.

The University of Guelph: - Sheep program recommendation #2 is being addressed by the following three projects:

Project #	Leader	Title
18630	Fisher J	An analysis of costs and returns of managing sheep flock health.
13350	Menzies P.	and Evaluating Health, Performance and Productivity in Ontario Sheep.
13270	Prescott J.	Use of Immunization to Control Q Fever in Sheep.
13280	Shewen P.	Investigation of Reproductive Infection with Chlamydia psittaci in sheep.

AAFC: The Animal Disease and Research Institute of the CFIA should be pressured into doing work on scrapie. Other health issues are not considered the responsibility of the AAFC.
 The non-research issue of scrapie surveillance is an excellent idea if one is to better understand the prevalence of this disease.
 AAFC does not have an official research program on sheep production but it is able to respond to some of the requests made by the industry through research endeavours that are done on the ruminant (chair note - sheep as a ruminant model.)

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RECOMMENDATION #3- NUTRITION

**PRIORITY
1-B**

TO: ARIQ, UNIVERSITY OF GUELPH

DETAILED OBJECTIVES:

1. Study the nutritional requirements of the prolific maternal lines produced under different management systems such as annual and accelerated. As a part of this research, develop a computer model to accurately formulate rations for these types of sheep whose needs are not met by NRC recommendations.
2. Compare various pasture and forage management techniques for reducing the cost of feeding sheep.
3. Compare various feed production systems for feedlot lambs of terminal sires. Develop an accurate mechanistic computer modelling program for lamb growth.
4. Assess the utility of such factors as rumen degradable protein and carbohydrates at maximizing rumen fermentative capacity.

RESPONSE:

ARIO: See response to recommendation #1.

The University of Guelph - The nutrition recommendation in the sheep program is being addressed by the following project:

Project #	Leader	Title
16180	Wilton J.	Breeding strategies and genetic evaluations for carcass merit for progeny of OLIBS ewes.
16190	Johnston J.	Forage based sheep production and management systems.

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RECOMMENDATION #4- MANAGEMENT & ECONOMICS

**PRIORITY
1-B**

TO: ARIO, UNIVERSITY OF GUELPH

DETAILED OBJECTIVES:

1. Evaluate the economics of applying embryo transfer technologies for genetic improvement in sheep production as measured within the OLIBS study.
2. Compare the economic performance of selected maternal lines with traditional breeds under different management systems such as annual lambing and accelerated lambing.
3. Evaluate and improve the existing OMAFRA-supported computer program (EweByte) for the evaluation of health, productivity and genetic record keeping, particularly within the OLIBS study.
4. Identify potential microbial, mechanical and chemical hazards which relate to lamb and sheep meat products and identify potential control points and risk factors during production, transportation and slaughter process.
5. Develop an economical, effective permanent animal identification system.

RESPONSE:

ARIO - See response to recommendation #1

The University of Guelph - Recommendation #4 in the sheep program is being addressed by the following two projects:

Project #	Leader	Title
13320	Buckrell B.	Improvements in the application of embryo and semen technologies to improve sheep productions.
13350	Menzies P.	Development and implementation of a system for monitoring and evaluating health performance and productivity in Ontario sheep.
16180		Breeding strategies and genetic evaluation for carcass merit for progeny of OLIBS ewes.

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RECOMMENDATION #5- GENETIC IMPROVEMENT

**PRIORITY
2-C**

TO: ARIO, UNIVERSITY OF GUELPH, CARC

DETAILED OBJECTIVES:

1. Develop an overall breeding strategy for the development of maternal trait sheep and evaluate available systems to compare these maternal trait sheep within and across flocks. Incorporate new maternal trait EPD's of the SFIP as well as the maternal trait indexes developed at the University of Guelph, and evaluate and integrate the information through an on-farm data collection and analysis program - EweByte.
2. Develop adjustment factors for use in across flock Sire Referencing Schemes.

RESPONSE:

ARIO: See response to recommendation #1.

The University of Guelph - Recommendation #5 in the sheep program is being addressed by the following project:

Project #	Leader	Title
16180	Wilton J.	Breeding Strategies and Genetic Evaluations for Carcass Merit for Progeny of OLIBS Ewes.

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RECOMMENDATION #6: MEAT PRODUCTION & EVALUATION

**PRIORITY
2-B**

TO: ARIO, UNIVERSITY OF GUELPH, CARC

DETAILED OBJECTIVES:

1. Evaluate the carcass characteristics of the maternal lines produced under OLIBS.
2. Evaluate changes in carcass composition of lambs produced by terminal sire crosses of maternal trait dams and of lambs produced from sire referencing schemes.

RESPONSE:

ARIO: See response to recommendation #1.

The University of Guelph - Recommendation #6 in the sheep program is being addressed by the following project:

Project #	Leader	Title
16180	Wilton J.	Breeding strategies and genetic evaluations for carcass merit for progeny of OLIBS ewes.

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1998-1999 Registered Projects for the University of Guelph - OMAFRA Sheep Program

OASIS #	RESEARCHER	TITLE
OMAFRA Sheep Research Program - additional funding agencies in brackets		
13320	B.Buckrell	Improvements in the application of embryo and semen technologies to improve sheep production (CanAdapt)
13340	W.A. King	Towards the in vitro production of viable sheep embryos of known sex. (CanAdapt)
13350	P. Menzies	Development and implementation of a system for monitoring and evaluating health, performance and productivity in Ontario sheep (IRAP)
13270	J.F. Prescott	Use of immunization to control Q fever in sheep.
13280	P. Shewen	Investigation of reproductive infection with Chlamydia psittaci in sheep
16180	J. Wilton	Breeding Strategies and genetic evaluations for carcass merit for progeny of OLIBS ewes
16190	J. Johnston	Forage-based sheep production and management systems
16200	J. Johnston	Applied aspects of sheep production and marketing
18640	J. Walton	Identification of sheep with extended breeding seasons.(Gartshore)

18630	J. Fisher	An analysis of costs and returns of managing sheep flock health (OSMA & Gartshore)
Non OMAFRA funded projects (funding agencies in brackets)		
	P. Menzies	Survey of selenium and vitamin E levels in sheep livers in Ontario abattoirs (Gartshore)
	P. Menzies	A survey of copper levels in sheep livers in Ontario abattoirs. (OSMA)
	B. Buckrell	Development of an on-farm program using fresh chilled ovine semen (CSBA, OSMA, SR Genetics and CanAdapt)
	T. Duffield	An evaluation of the effect of tilmicosin in ewes prior to lambing on incidence of clinical mastitis and subsequent lamb performance. (Elanco/Provel)
	T. Fernandez	Development of a real time ultrasound, live carcass evaluation data collection system for sheep. (Rural Job Strategy, OSMA and the Ontario Suffolk Sire Reference Scheme)
	A Meister	Development of a computerized sheep milk recording system. (OSMA and the Ontario Dairy Sheep Association)
	D Westaway	The sheep dopple gene: encoding a novel prion-like protein - isolation and characterization (U of Toronto and OSMA)
	J. Johnston	Cost and returns of irrigating sheep pasture (OSMA)

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OMAFRA RESPONSE TO

THE 1997 ONTARIO ANIMAL RESEARCH AND SERVICES COMMITTEE NON-R&D SERVICE RECOMMENDATIONS

SPECIES - SHEEP

RECOMMENDATION #1 - EXTENSION SUPPORT -

To have no decreases in the level of extension support for

predation protection, disease investigation and genetic evaluation (i.e. SFIP). To increase the level of extension support for nutritional consulting since this area is not well served by private consultants. To support the updating and use of the OMAFRA Sheep Ration Formulation computer program. To maintain the level of support for OLIBS and non-OLIBS producer and veterinary continuing education. To promote and support continued cooperative research-extension efforts with the University of Guelph researchers, with particular reference to the OLIBS project

RESPONSE:

OMAFRA will continue to support extension of information to the sheep industry through a tiered structure as recommended by the Agriculture and Rural Services Study (1997). Producers can access OMAFRA services by contacting any of the 35 field office locations or by the internet. Customer service representatives and agricultural and rural representatives in our field offices have access to and can provide basic production and business information. Sheep specialists and the sheep and goat health management consultant are responsible to prepare technical information packages on priority topics for delivery to the industry including leading edge, commercial sized operations. Production information and links to affiliated sites can be accessed on the internet through OMAFRA's home page (www.gov.on.ca/omafra). Production information seminars organized by the Ontario Agricultural Training Institute are an effective information transfer to new entrants.

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RECOMMENDATION #2 - SCRAPIE SURVEILLANCE**TO: OMAFRA AND AAFC-CANADIAN FOOD INSPECTION AGENCY AND THE LABORATORY SERVICES DIVISION, UNIVERSITY OF GUELPH**

The true prevalence of Scrapie in Canada is unknown. This may have a negative impact on the international marketing of sheep products as well as having a detrimental effect on Canadian consumer confidence. To begin to address this issue, we request that the mentioned organizations support the establishment and operation of a passive Scrapie surveillance system that will screen adult sheep for Scrapie that are submitted to Ontario Animal Health Laboratories for neurological disease. An active surveillance system on slaughter house cull sheep should also be considered and implemented as soon as possible.

RESPONSE:**UNIVERSITY OF GUELPH**

The recommendations outlined above are not being addressed in the Animal Research Program in 1998/1999. However, with OASCC and OMAFRA direction, we will again put out a call for this research undertaking in 1999/2000.

AAFC

No response received. (chair note - see under health research, AAFC has a note there regarding this issue)

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RECOMMENDATION #3 - PREDATOR CONTROL

TO: OMAFRA, OMNR

Much work has been done in researching aversion methods for predator control. It is also important to support efforts at testing and promoting selective predator removal, such as effective and directed poisoning (e.g. 1080 and cyanide).

OMNR

MNR recognizes the legitimate concerns of the farm community about increasing coyote predation in southern Ontario. For a number of years, MNR has been working closely with OMAFRA and the various agricultural sectors to test, develop and promote alternative solutions to coyote predation.

While MNR appreciates that increasing predation is a serious concern, the Game and Fish Act prohibits the use of poisons for killing wildlife except as provided under regulation. Currently there is no regulation in place to allow the use of poisons since MNR does not support their use for killing wildlife. Before a change to present policy could be considered, MNR would need to carefully assess the need to introduce poisons in Ontario, their effects on people, other animals and the environment, and under what circumstances they would be used. MNR anticipates strong public opposition to the use of poisons, even in a controlled manner, and continues to believe that efforts might be better directed at developing effective alternative predator control mechanisms that will be better received.

OMAFRA

OMAFRA has provided funding to the Ontario Sheep Marketing Agency to fund a "Predator Information Officer" project and a trapping project to selectively remove problem predators.

A Predator Information Officer is in place and has been instrumental in providing information and advice to sheep producers with a history of significant numbers of lambs and sheep lost to predators. Producers have responded by making improvements in fencing, using guard animals and altering livestock management procedures.

The trapping project (which) operated in fall of 1997 and spring of 1998 in cooperation with the Ontario Fur Managers Federation is effective through the removal of problem predators. Lamb and ewe losses have declined significantly through the application of this program.

The use of products to control problem predators is at the "approved" stage in the regulatory bodies.

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RECOMMENDATION #4 - BRUCELLA OVIS CONTROL

TO: AAFC - CANADIAN FOOD INSPECTION AGENCY

Brucella ovis is an emerging disease in sheep in Canada. Experience in other countries (e.g. USA, New Zealand) tells us that by ignoring this disease, its prevalence and its outcome-infertility, will climb rapidly. The disease is relatively rare in Ontario but increasingly common in the western provinces. Recommendation for the cessation of testing of sheep imported to

Canada has been very controversial in the sheep industry. Serological testing for other than export, should be readily available to veterinarians that are attempting to identify and control this disease.

RESPONSE:**AAFC**

No response received.

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RECOMMENDATION #5 - LABELLING REGULATIONS FOR MINOR SPECIES**TO: BUREAU OF VETERINARY DRUGS, HEALTH CANADA & CANADIAN FOOD INSPECTION AGENCY - AAFC**

The continuing lack of label claims for minor species presents an important public health issue to consumers. Lack of readily available information on the appropriate use and withdrawal times for many drugs, likely leads to their misuse. These are drugs that are commonly used and known to be efficacious in other "developed" countries. The barriers to availability are mostly monetary, i.e. the cost of fulfilling the required testing and registration fees are out of line for the projected profit from sales for the drug company. Allowing the use of data generated from other countries (e.g. USA, Australia, EU) where these drugs are labelled for use in sheep and goats, as well as reducing the registration fees for minor revenue generating drugs, will improve the way drugs are prescribed and used for minor species in Canada.

RESPONSE:**HEALTH CANADA**

The following reply was received by OMAFRA from the Director, Bureau of Veterinary Drugs, Health Canada:

"The Bureau of Veterinary Drugs does accept data generated from other countries in support of the registration of drugs for use in animals. In some circumstances, however, we require Canadian data to confirm that the drug effect(s) observed can be reproduced under Canadian conditions of use, including climate, diet, genotype, husbandry practices, etc.

The Veterinary Drug Evaluation Fees Regulations do provide for a substantial (90%) reduction in evaluation fees, upon request from a drug manufacturer, when the total anticipated 3 year gross sales forecast is less than 10% of the prescribed drug evaluation fee.

These provisions are currently in place and may be used by drug manufacturers when applying to register veterinary drugs for use in goats or sheep.

A contact provided in the reply is Dr. Donald A. Landry, Chief, Pharmaceutical Assessment Division @ (613) 957-3876.

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**RECOMMENDATION #6 - ABATTOIR CARCASS INSPECTION
& DISEASE SURVEILLANCE:****TO: OMAFRA & CFIA-AFFC**

Inspection and reporting of diseases that have either an economic or public health impact should be strongly supported. Diseases such as Johne's disease, Brucella ovis epididymitis and Caseous Lymphadenitis should be reported back to the producer and also as part of a national data base (as with Scrapie).

AAFC

No response received.

SUMMARY OF DISTRIBUTION OF RECOMMENDATIONS

Recommendation	ARIO	AAFC & CFIA	CARC	U of G	OMAFRA
RESEARCH					
Reproduction	X			X	
Health	X	X	X	X	
Nutrition	X			X	
Management & Economics	X			X	
Genetic Improvement	X		X	X	
Meat Production & Evaluation	X		X	X	
SERVICES					
Extension				X	
Maedi-Visna program		X		X	
Scrapie Surveillance		X		X	X
Milk Quality				X	
Illegal Slaughter				X	
Brucella ovis control		X			
Other disease surveillance		X		X	X

| [Table of Contents](#) | | [Top of Page](#) |**DETAILED RECOMMENDATIONS - RESEARCH****SPECIES - SHEEP****RECOMMENDATION #1: REPRODUCTION****PRIORITY
1-C****TO: ARIO, UNIVERSITY OF GUELPH****DETAILED OBJECTIVES:**

1. Develop and evaluate improvements in the practicality of embryo transfer technologies, particularly in superovulation, embryo freezing, transfer, sexing, twinning, cloning in juvenile and mature ewes. This also includes evaluating methods for relaxing the cervix to improve success of artificial insemination and embryo transfer.
2. Develop a practical technique to recover unfertilized eggs (oocytes) from the ovaries of immature lambs for in vitro fertilization.
3. Develop and evaluate a technique for in vitro gamete fertilization and transfer (in contrast to embryo transfer).
4. Develop techniques to improve the survival of frozen ram semen and extend the survival of fresh ram semen.

BACKGROUND:

For the goal of the OLIBS study to be realized, the efficient production of embryos, suitable for transfer must be accomplished. Streamlining of techniques and improving success rates are necessary to reduce the cost per lamb born. This is important in the short term, in order to speed up the reproductive rate of genetic progress for on-farm evaluation of the OLIBS maternal trait sheep, but also in the long term for the sheep industry to allow efficient movement of genetics from flock to flock without compromising the health status of the flock. The success of gamete transfer and in vitro fertilization as well as improved artificial insemination success is an integral part of the process and its eventual commercial success.

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RECOMMENDATION #2- HEALTH

PRIORITY
1-C

**TO: ARIO, UNIVERSITY OF GUELPH, AGRICULTURE AND
AGRI-FOOD CANADA, CANADIAN FOOD INSPECTION
AGENCY**

DETAILED OBJECTIVES:

1. Develop an Ontario Sheep Flock Health Improvement Program that will encourage proper flock health management and drug use and will allow for accreditation of disease status of sheep flocks.
2. Use data collected from on-farm management programs to evaluate health and productivity and impact of disease and its eradication on selected farms.
3. Efficacy of treatment modalities in curing copper exposed sheep needs to be evaluated as well as assessing the prevalence of the disease and the risk factors of various forages, prepared feeds and feed preparation techniques.
4. Develop and/or assess diagnostic tests for detection of Scrapie either in postmortem tissues or the live animal. Using established surveillance techniques, monitor the prevalence of scrapie in Cdn sheep.

BACKGROUND:

Considerable information on the health status of Ontario sheep has been gathered in recent years. Several diseases have been identified that have an economic impact on the health of the Ontario sheep flock. For producers to make significant advances

in productivity, these diseases need to be controlled or eradicated. Some require only an improvement in standard health management practises such as vaccination and parasite control. Others require an infrastructure to assure eradication, e.g. maedi-visna infection, caseous lymphadenitis, and others. This infrastructure would involve standardized testing and regulations with the result being a flock accreditation program that would allow other producers purchasing breeding stock, to assume a flock carries a low risk of disease. In addition, it is important to educate producers and veterinarians with respect to quality assurance issues, such as extra-label use of drugs and residue avoidance.

Treatment and prevention of copper toxicity in sheep is an increasingly important issue due to more concentrate feeding of sheep and more risk of feed mill contamination or mix-ups with cattle and swine feeds. Other risk factors include forages and pastures that have been contaminated with copper containing manure. Many of the treatment modalities have not been assessed with respect to short term and long term efficacy, nor their risk to public health. Many times it is difficult to trace back the source of the exposure.

The prevalence of Scrapie is not known in Canada. Recent outbreaks of clinical Scrapie underline the fact that this disease is still an important issue in Canada both in terms of the health of the national flock and for exportation of live animals and sheep products.

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RECOMMENDATION #3- NUTRITION

**PRIORITY
1-B**

TO: ARIO, UNIVERSITY OF GUELPH

DETAILED OBJECTIVES:

1. Develop a computer model for the nutritional requirements of prolific heavy milking ewes. Study the nutritional requirements of the prolific maternal lines produced under different management systems such as annual and accelerated.
2. Compare various pasture and forage management techniques for reducing the cost of feeding sheep.
3. Develop an accurate mechanistic computer model for fast growing lambs sired by terminal sire breeds. Compare various feed production systems for feedlot lambs of terminal sires.
4. Assess the utility of such factors as rumen degradable protein and carbohydrates at maximizing rumen fermentative capacity.
5. Study the interaction between copper, molybdenum, sulphur, iron and zinc in sheep feeds and the effect on copper levels in the livers of sheep.

BACKGROUND:

Computer modelling of results from past research offers a new tool to help to more accurately determine the nutritional requirements for highly productive sheep and fast growing market lambs. These data, beyond the inadequate recommendations provided by the 1985 NRC publications, would be of tremendous value to the sheep industry. The single greatest variable cost in sheep production is feed, therefore significant potential for reducing costs and increasing profit potential is through improvements in nutrition and feeding.

[| Table of Contents](#) | [| Top of Page](#) |**RECOMMENDATION #4- MANAGEMENT &
ECONOMICS****PRIORITY
1-B****TO: ARIO, UNIVERSITY OF GUELPH****DETAILED OBJECTIVES:**

1. Evaluate the economics of applying embryo transfer technologies for genetic improvement in sheep production as measured within the OLIBS study.
2. Compare the economic performance of selected maternal lines with traditional breeds under different management systems such as annual lambing and accelerated lambing.
3. Evaluate and improve the existing OMAFRA-supported computer program (EweByte) for the evaluation of health, productivity and genetic record keeping, particularly within the OLIBS study.
4. Identify potential microbial, mechanical and chemical hazards which relate to lamb and sheep meat products and identify potential control points and risk factors during production, transportation and slaughter process.
5. Develop an economical, effective permanent animal identification system.

BACKGROUND:

Technologies in reproduction, health, nutrition, genetics and meat production may be shown to improve productivity but the investment in research in these areas is only worthwhile if the improvements result in profit. A permanent animal identification program is essential for any disease control program or quality assurance program that involves slaughter house surveillance.

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IMPROVEMENT****PRIORITY
2-C****TO: ARIO, UNIVERSITY OF GUELPH, CARC****DETAILED OBJECTIVES:**

1. Develop an overall breeding strategy for the development of maternal trait sheep and evaluate available systems to compare these maternal trait sheep within and across flocks. Incorporate new maternal trait EPD's of the SFIP as well as the maternal trait indexes developed at the University of Guelph, and evaluate and integrate the information through an on-farm data collection and analysis program - EweByte.
2. Develop adjustment factors for use in across flock Sire Referencing Schemes.

BACKGROUND:

The sheep industry has identified the production of superior maternal trait sheep as important to improving the productivity of the Ontario sheep flock. Prior to this, most genetic selection has been based on growth variables. Producers, in order to identify

and select appropriate maternal trait animals for replacement, semen collection for artificial insemination or embryo recovery, require new tools. The OLIBS study offers a framework in which to develop and evaluate these tools. Sire referencing schemes are becoming more practical with the advent of successful AI programs. Again, appropriate genetic selection tools need to be evaluated and made available to producers.

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RECOMMENDATION #6- MEAT PRODUCTION & EVALUATION **PRIORITY 2-B**

TO: ARIO, UNIVERSITY OF GUELPH, CARC

DETAILED OBJECTIVES:

1. Evaluate the carcass characteristics of the maternal lines produced under OLIBS.
2. Evaluate changes in carcass composition of lambs produced by terminal sire crosses of maternal trait dams and of lambs produced from sire referencing schemes.
3. Determine the appropriate fat cover for shelf life, palatability and consumer acceptance.

BACKGROUND:

The future of the sheep industry is in the development of prolific, heavy milking sheep that can breed successfully out-of-season. However, these breeds have not been sufficiently muscled to meet the demands of the meat processor and consumer. Excellent terminal cross genetics exist in Ontario but the crosses need to be evaluated with respect to carcass characteristics. Terminal sires will continue to improve through the use of sire referencing schemes but the product lambs of such schemes need to be evaluated with respect to carcass characteristics in order to make appropriate genetic selection.

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DETAILED RECOMMENDATIONS - SERVICE

SPECIES - SHEEP

RECOMMENDATION #1 MAEDI VISNA CERTIFICATION PROGRAM

TO: OMAFRA & CFIA - ANIMAL AND PLANT HEALTH - AAFC

As part of the OLIBS project, a provincial flock health program will be made available to Ontario sheep producers. Level 1 which involves no disease testing, will be administered by the Ontario Sheep Marketing Agency. However, the industry is very anxious to have specific disease accreditation programs for diseases such as Maedi Visna. The intent is to have a cost recovery provincial

program, administered by both OMAFRA and OSMA. OMAFRA would take on the fee for service role of assuring the correct paperwork were submitted by the veterinarians doing the flock testing, receiving the results of the test and issuing certificates of status. OSMA would coordinate with OMAFRA on providing a list of those producers enrolled in the Level 1 program (a pre-requisite for any Level 2 program)

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RECOMMENDATION #2 - EXTENSION SUPPORT

TO: OMAFRA

- To increase the level of sheep specialist support by 1.0 FTE to service those producers increasing their flock size and / or moving to more intensive forms of flock management and locate this person at the Fergus office (Wellington Place).
- To increase the level of extension support for health management consultant to 0.25 for sheep and 0.25 for goats.
- To increase the level of extension support for nutritional consulting by 0.1 FTE since this area is not well served by private consultants.
- To move the dairy sheep extension effort to the dairy cow specialists.
- To support the administration, along with the Ontario Sheep Marketing Agency, of the Ontario Sheep Flock Health Program, due to be released within the year.
- To develop a Sheep Livestock Medicines course for use in the provincial quality assurance program.
- To support the updating of the Ontario Shepherds Manual with participation from the sheep specialist(s) and health management consultant.
- To support the development of the On-Farm Quality Assurance program, currently being developed by OSMA and other provincial and national bodies with participation from the sheep specialist(s) and health management consultant.
- Continue to support the Predator Information Officer position. This position should also be responsible for administration of the integrated predator (vertebrate pest) management program.
- To maintain the level of support for OLIBS and non-OLIBS producer and veterinary continuing education.
- To promote and support continued cooperative research-extension efforts with the University of Guelph researchers, with particular reference to the OLIBS project.

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RECOMMENDATION #3 - SCRAPIE PROGRAM

TO: AAFC-CANADIAN FOOD INSPECTION AGENCY, OMAFRA & THE ANIMAL HEALTH LABORATORY, LABORATORY SERVICES DIVISION, UNIVERSITY OF GUELPH

In the last two years, the number of flocks with diagnosed cases of scrapie has increased dramatically, indicating that the current

control program is not sufficient in controlling this disease. We recommend that a passive Scrapie surveillance system be implemented that will screen adult sheep for Scrapie that are submitted to Ontario Animal Health Laboratories for neurological disease. An active surveillance system on slaughter house cull sheep should also be considered and implemented as soon as possible. In addition, a voluntary scrapie disease status certification program should be established for the province and perhaps for the country.

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RECOMMENDATION #4 - SHEEP MILK QUALITY CONTROL

TO: OMAFRA - FOOD INSPECTION BRANCH AND THE DAIRY FARMERS OF ONTARIO

It is unclear who is responsible for the administration of the Milk Act with respect to sheep and goats since the transfer of the Raw Milk Quality Program to the Dairy Farmers of Ontario. Both the dairy sheep and dairy goat industries are growing exponentially. Both have milk quality issues and both need to be strongly regulated and guided to assure a wholesome product is provided to consumers. Clarity regarding the appropriate mechanism of regulation is required.

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RECOMMENDATION #5 - CONTROL OF UNREGULATED SLAUGHTER

TO: OMAFRA - FOOD INSPECTION BRANCH

The continued practice of illegal on-farm slaughter of uninspected carcasses which are then sold in stores, appears to be growing and there are insufficient numbers of investigators to control it. Funding of more investigators to control and limit these practices is required to assure only wholesome products are sold to consumers.

In addition, often stores will sell uninspected game at the same time as inspected carcasses, increasing the risk of cross-contamination of important zoonotic diseases such as leptospirosis, tuberculosis or rabies. Enforceable regulations need to be created to prevent this potentially dangerous practice.

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RECOMMENDATION #6 - BRUCELLA OVIS CONTROL

TO: AAFC - CANADIAN FOOD INSPECTION AGENCY

No response was received to our previous recommendation. Brucella ovis is an emerging disease in sheep in Canada. Experience in other countries (e.g. USA, New Zealand) tells us that by ignoring this disease, its prevalence and its outcome-infertility, will climb rapidly. The disease is relatively rare in Ontario but increasingly common in the western provinces. Recommendation for the cessation of testing of sheep imported to Canada has been very controversial in the sheep industry.

Serological testing for other than export, should be readily available to veterinarians that are attempting to identify and control this disease.

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RECOMMENDATION #7 - ABATTOIR CARCASS INSPECTION & DISEASE

TO: OMAFRA - FOOD INSPECTION BRANCH & AFFC - CANADIAN FOOD INSPECTION AGENCY

No response was received to our previous recommendation. Inspection and reporting of diseases that have either an economic or public health impact should be strongly supported. Diseases such as Johne's disease, *Brucella ovis* epididymitis and Caseous Lymphadenitis should be reported back to the producer and also as part of a national data base (as with Scrapie). We support the rapid implementation of a national livestock identification program which would allow this.

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APPENDIX

DUTIES & TERMS OF REFERENCE OF COMMITTEE

1. To review sheep research and service being carried out in Ontario.
2. To disclose problems that face the sheep industry and that which require investigation.
3. To assess the relevance of research and service programs and suggest priorities for new research programs, and to recommend what programs underway should be continued expanded or terminated.
4. To estimate the cost involved to conduct research and service programs and to supply cost-benefit information if possible.
5. To supply this information in written reports to the OARSC.
6. To invite researchers in Ontario to information meetings where progress in research and services with sheep can be presented.
7. To function through an animal species chairman who will be appointed by the OARSC. The appointment of the chairman will be for four years. He will not succeed himself but may serve an additional four year period with at least a four year absence in between each period.

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Inventory of Person-Years in Sheep Research in Ontario - 1996-97

Location	Faculty P.Y.	Staff P.Y.	Technical P.Y.
New Liskeard Agricultural Research Station (University of Guelph)	0.1	0.4	1
University of Guelph	1.85	3.5	0.4

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Inventory of Person-Years in Sheep Services in Ontario - 1996-97

Type of Support	Sheep Specialist P.Y.	Extension Assistants P.Y.
OMAFRA - general	0.5	
OMAFRA - nutrition	0.05	
OMAFRA - genetics & reproduction	1.0	
OMAFRA - health	0.4	

Coding of Research:

Priority:

1. Very important;
2. Important
3. Desirable

Level of Research:

- A - new topic; no known research
- B - expansion needed, some research underway;
- C - continue at existing level;
- D - decrease or discontinue

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ONTARIO SHEEP RESEARCH & SERVICES COMMITTEE - 1997-98

NAME	LOCATION	AFFILIATION	TERM TO
Dr. Paula Menzies, Chair	Dept. of Population Medicine, University of Guelph, Guelph, Ont. N1G 2W1 Tel:(519) 824-4120 ext 4043 Fax: (519) 763-8621, Email pmenzies@ovcnet.uoguelph.ca	Veterinary Practitioners	1999
Mr. Fred Baker	OSMA, RR#3, Mountain, Ont, K1A 0T6, Tel: (613) 989-5352 Fax (613) 989-3919 Email: fredbaker@statcan.ca	OSMA	2000

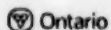
Dr. Brian Buckrell	Dept of Population Medicine, OVC, U of Guelph, Guelph, Ontario N1G 2W1 Tel: (519) 824-4120 ext 4011 Fax: (519) 763-8621 Email: bbuckrell@ovcnet.uoguelph.ca	Researcher - OVC	1999
Mr. John Cuthbert	Canadian Co-op Woolgrowers, RR#1 Cookstown, Ontario L0L 1L0 Tel: (705) 458-4800 Fax: (705) 458-0186	CCWG	2000
Gail Irvine	RR#4, Peterborough, Ontario K9J 6X5 Tel: (705) 292-7209 Fax: (705) 292-0460 Email: RIRVINE@TrentU.ca	Producer	1999
Mr. Jim Johnston	New Liskeard AR S, Box G, New Liskeard, Ontario P0J 1P0 Tel: (705) 647-6701 ext 26 Fax: (705) 647-7008	Researcher - OMAFRA	1998
Ms. Delma Kennedy	Agriculture & Rural Division, 3 N.E., OMAFRA, 1 Stone Rd., Guelph, Ont, N1G 4Y1, Tel: (519) 826-3290 Fax: (519) 826-3254 Email: dkennedy@omafra.gov.on.ca	SFIP - OMAFRA	2000
Kelly Maloney, Manager	OSMA, 730 Malcolm Rd, Guelph, Ont, N1K 1B1 Tel: (519) 836-0043 Fax: (519) 824-9101 Email: osma@freespace.net	OSMA	2002
Dr. John Martin	Wellington Place, OMAFRA, RR#1, Fergus, Ontario, N1M 2W3 Tel: (519) 846-0965 Fax (519) 846-8101 Email: jmartin@omafra.gov.on.ca	OMAFRA, Vet extension	2000
Bill McCutcheon	RR#2 Grand Valley L0N 1G0 Tel: (519) 928-9626	Cdn Sheep Breeders Assoc	2000
Ewen McMillan	1354, 66 Regional Road, Caledonia, Ontario, N3W 1R2, Tel: (905) 765-5705 Fax: (905)238-1160	Feed Industry	1999
Anita O'Brien	OMAFRA, Postal Bag 7800, Kingston, Ont, K7L 5T4 Tel: (613) 531-5580 or 531-5589 Fax: (613) 531-5585 Email: aobrien@omafra.gov.on.ca	OMAFRA - extension	1999
Alan Ribbink	RR#1, Tiverton, Ontario, N0G 2T0 Tel: 519) 368-7691 Fax: (519) 368-7522	Producer	1999
Mrs. Dorothy Sloan	10 Campbell Cres, North York, Ontario, M2P 1P2 Tel: (416) 489-4487 Fax: (416) 489-3361	CSF, CCWG	1998

Mr. David Wight	RR#1, Belle Vallee, Ontario, P0J 1A0 Tel: (705) 647-8686 Fax: (705) 647-4765	Wool Processor	2000
Laurie Murdock, Executive Director	Ontario Independent Meat Packers and Processors P.O. Box 20059, Woodland Postal Outlet, Guelph, Ontario N1H 6H6 Tel: (519) 763-4558; 1-800-263-3797 Fax: (519) 763-4164	Meat Processors Industry	not a member

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